

**REPORT OF
THE FIRST NATIONAL WORKSHOP
FOR GOVERNMENT DOCTORS
ON**

**"THE MODERN SCIENTIFIC
ADVANCES AND EFFECTIVE
USE OF THE
OVULATION METHOD
OF FAMILY PLANNING"**

BY :

**CREST - Centre for Research, Education Service and Training
for Family Promotion.**

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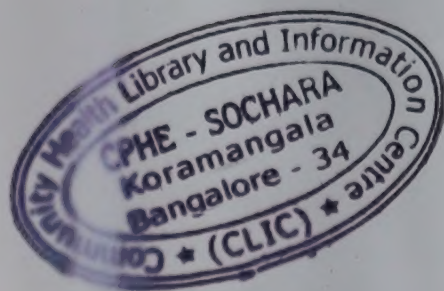
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'The Ovulation Method is Safe, Effective, (95-98%) and Inexpensive'

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Workshop Cosponsored by CREST

The Indian Medical Association (Bangalore)

and

The Indo German Social Service Society, New Delhi

At

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The Indian Medical Association (IMA) is a non-profit organization
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First National Workshop

INTRODUCTION

Situational Background of NFP

The development of Natural Family Planning (NFP) as a National Programme in India has a much chequered history. As early as 1930, India was made aware of the need for Family Planning (F. P.), and the first Clinic was set up in Karnataka. In 1952, Independent India launched the biggest National F. P. Programme in the world.

The influence of Mahatma Gandhi, whose firm belief in this matter was "Birth Control by Self Control", prevailed. The first two Health Ministers of Independent India were Gandhian in outlook and conviction, and as a result F. P. was advocated officially with the Rhythm Method alone. And it was in the State of Karnataka, of which Bangalore is the capital, that the pilot project, directed by Doctor Abraham Stone from U. S. A., was implemented.

Coloured beads were introduced, as a necklace used by eligible women, who were expected to calculate their fertile period according to the Calendar Method. Naturally, failures resulted as menstrual cycles varied, and the impracticability of observing the different colours in villages with no electricity, etc., was noted.

Due to much pressure from world

bodies the F. P. Programme then took up the Condom, Diaphragm, and Foam tablets. All these met with a similar fate due to the Cultural and Social conditions prevailing.

Attitude of People :

Moreover, the basic attitude of our people, who need a large family because of the following reasons, had not been considered by the "macro-level" programme of the Government.

- a) High Infant Mortality. Presently 129/1000.
- b) Manual labour needed in the fields where tractors and water are scarce.
- c) Early age of Marriage, inspite of Legal age being 18 and 21 for girls and boys respectively.
- d) Need for a male child.
- e) Social and economic security, provided by children for the parents in their old age.

The next step taken by the Government was the introduction of the Intra Uterine Device (Lippe's Loop). However, this programme did not meet with the success it was expected to. It was true that no motivation was required, once introduced into the woman's uterus.

But haemorrhage, spontaneous expulsion and other complications did not make it attractive for a doctor to take risks, or for a woman who knew this, to use it.

The Government then resorted to a different strategy. Much pressure was brought from foreign agencies (often tied to Aid) to make Sterilisation and Abortion, but referred to officially as Medical Termination of Pregnancy (M. T. P.) to avoid the word "Abortion" which was repugnant to the average citizen, (82 percent Hindus, 12 percent Muslims, 3 percent Christians and others), freely available.*

Government Family Planning Programmes ignored the basic requirements and the health education needed to change the attitudes and habits of our people. The Programme was launched by strangers, who came to rural areas in vans, equipped to carry out Surgical Operations or to introduce the I. U. D., and achieve a certain target irrespective of the individual couple's circumstances.

Lack of Follow-up, Participation and Involvement—Reasons for Failure

A follow-up was lacking and local participation and involvement was remarkably absent.

THE FIVE FUNDAMENTAL STEPS IN ANY HEALTH EDUCATION PROGRAMME WHICH IS NEEDED TO CHANGE THE HABITS OR TO ACQUIRE HEALTHY ACTIONS WERE NOT FOLLOWED.

1. Awareness of the problem at the macro level of the family.

2. Attitudinal changes absent.
3. Acceptance on a personal basis. Culture, Religion and Society exert open or subtle pressures and cannot be ignored.
4. Action or change in habit, a positive or decisive step needed.
5. A follow-up which involves an integrated approach to family life and health.
6. Availability and accessibility of personnel, materials, etc.

FIRST CLINIC

It was into this background that NFP was introduced, resulting in the First Clinic, in 1956, in Bangalore; staffed on a weekly basis, by Drs. D. M. Satur and M. M. Mascarenhas, at St. Martha's Hospital.

In 1971, the Christian Medical Association of India (CMAI) came forward and made a Grant of Rs. 20,000/- to the Clinic in order to have Research and Services, in providing NFP Methods, in which they too were interested (along with all the other methods of F. P. that they provided).

This Grant was really the beginning of serious thinking that more work should be done in this field.

In 1972, Dr. M. M. Mascarenhas was invited to make a Major Presentation at the National Convention of Catholic Hospitals in Mangalore, and this really led to an awakening from Administrators, Superiors, Doctors and Nurses of hundreds of hospitals and health institutions. They realised that NFP deserved to be

* *Family life Education (Publ. Crest pgs. 211, 214]*

considered more seriously, and to be an integral part of the hospital services offered, especially in the Maternal and Child Health Departments.

Henceforth the development of NFP can be discussed under four major headings :-

Research

Until the World Health Organisation (WHO) Study of the Ovulation Methods (OM) in five countries, no data existed in India. Bangalore was selected from 20 centres in India, to conduct this research with the consent of the Indian Council of Medical Research (ICMR) and the Ministry of Health and F. P. The results of this study which are now available, cannot be ignored.

A report of the Study, with particular reference to India is given later in this Report.

During this Study, Dr Arnold Radtke, M. D. of Misereor suggested a wider Study covering the whole State of Karnataka. This was also awarded to CREST (which is a registered voluntary Trust), and an expert group of workers from all parts of the state were trained for research in the Karnataka State Fertility Study.

Misereor - I. G. S. S. (Indo - German Social Service Society) Involvement

The Natural Family Planning (NFP) Programme in India is a unique socio-economic development and moral value oriented demographic project being undertaken by the Church in India with

the significant Financial aid sanctioned by Zentralstelle für Ectwicklungshilfe e. V. and B. B. Misereor e. V., Aachen, Federal Republic of Germany.

The church-related and other voluntary agencies which are working in the field of NFP as known to ICSS are : The Catholic Bishops' Conference of India (CBCI) Commission on the Family, Bangalore; the CBCI Commission on Health Services; NFP Association of India, New Delhi; Catholic Hospital Association of India, New Delhi; Family Life Centre, Indian Social Institute, New Delhi; NFP Training Centre, Patna; Tamil Nadu Family Life Centre, Tiruchirappalli; Family Welfare Centre, Bangalore; Centre for Research, Education, Service and Training for Family Life Education (CREST), Bangalore; and the various other NFP Centres at the diocesan and parish levels.

The work undertaken by the Church in the field of NFP is of recent origin. NFP is yet to become a programme recognized by the Government of India for budgeting. In 1976, when the organisations set up by the Catholic Church were in the infant stage, when trained personnel to promote NFP were not adequately available, and when B. H. MISEREOR e. V. and IGSSS were receiving applications for financial assistance towards meeting the cost of NFP educational/clinical training programmes, finance had to be subsequently mobilised for all diocesan NFP Programmes, based on the recommendations of the two NFP national consultations held at New Delhi in 1976 and at Bangalore in 1977.

GENESIS OF THE WORKSHOP : On February 25th 1983 "The Committee for liason with the Government and International Organizations for Natural Family Planning" (NFP) met in New Delhi.

A decision was taken at this meeting that a Workshop on Scientific lines and projecting the validity and applicability of NFP Methods should be held for Government employed doctors in order to promote NFP, and also to strengthen the existing sixtyseven centres financed by Indo-German Social Service Society (IGSSS) for promoting NFP. (See AIDER Published by IGSSS 1981)

Dr. M. M. Mascarenhas, Director of Crest, was asked to prepare a Project to hold this workshop, in Bangalore since :

1. Bangalore was the centre for the *WHO Multicentre Trial* of the Ovulation Method in India. All the WHO Record Books of 278 couples over a period of 2 years with detailed medical, socio-economic psycho-sexual and biochemical observation were made available.
2. Also, the *Karnataka State Fertility Study* which detailed study included 2,790 couples from different parts of the state, and could provide much scientific data.
3. A *Family Welfare Clinic* based in St. Martha's Hospital, where Dr. M. M. Mascarenhas is Honorary Consultant, could be visited and the teacher met.
4. Expert faculty from the various disciplines, including the Indian Insti-

tute of Science which had done the progesterone assays, were willing to take part in the Workshop.

5. Bangalore had the first centre for NFP since 1966 and has been recognized for training and service both by the Government, Catholic dioceses, voluntary agencies and medical institutions.

Preparatory Work : Printed circulars with application forms asking all *Dioceses and Family Life Centres* in India as well as other projects known to be financed or associated with IGSSS were sent out.

The *Voluntary Health Association of India* and *Catholic Hospital Association of India* were invited to send the name of a Government doctor with whom they were associated or who may be interested to attend such a workshop.

Circulars were further sent to the *Health Department* in every *State* and *Union Territory*.

In addition the Deans of all the *Medical Colleges* in India were invited to depute a Senior Medical Officer from the Department of Obstetrics and Gynaecology.

Personal letters were written to some Bishops and several Directors of NFP Project where NFP could be easily facilitated.

The *Natural Family Planning Association of India* was well informed and asked to nominate and contact doctors to attend this Workshop. With the Circular, a copy of the paper in the *International Review in Natural Family Planning* 1982

'The Ovulation Method in India' was sent for preparatory study.

Responses : An unprecedented response for the forty places was experienced by Crest. Applications were received from 110 Doctors. Forty one doctors (including two sociologists) were selected.

Only 5 Diocesan centres aided by IGSSS responded. The Government response, however was tremendous.

Venue : At the Delhi meeting it had been decided to hold the workshop at a Medical venue.

Crest was very fortunate in successfully applying to the distinguished Bangalore Branch of the *Indian Medical Association* in Bangalore city and obtaining its approval to co-sponsor the workshop & thus reserve the Conference Hall and the spacious board room for three full days.

We wish to place on record our thanks to the Indian Medical Association (IMA), and to its staff who assisted us in several ways, without any charge.

Selection of Participants :- In selecting the participants the following criteria were kept in mind :-

1. Government Doctors involved already in Family Planning departments or schemes.
2. Connection with NFP Projects.
3. Seniority and scope of work.
4. Nation-wide distribution.
5. Ability to pay own travel especially from distant parts. Some Government Doctors were able to get government sanction for their travelling expenses.

All doctors were given 'Leave for study' and considered on duty for the period of the Workshop and Travel.

- Faculty:**
1. Dr. Dara Amar, MBBS, MD, Assoc. Prof. of Community Medicine, St. John's Medical College,
 2. Ms. Shashi Deshpande, MA, LLB, Novelist, Broadcaster, Trustee of Crest.
 3. Dr. M. J. Iype, MBBS, DA, Govt, Hospital, Vellore, Anaesthetist. NFP Promoter.
 4. Prof. Krishna Kumari, FRCOG, MD, Head of Dept. of Obstetrics/Gynaecology, St. John's Medical College. presented first paper on the Ovulation Method at Conference of Obst. and Gynae. in Calcutta in December 1981.
 5. Prof. Alfred Mascarenhas, MS, FRCS, Head of Dept. of Surgery & Med. Supdt. St. John's Medical College, Hon. Director of Family Welfare Centre till 1982.
 6. Dr. M.M. Mascarenhas, MBBS, DPH, former Head, Dept. of Community Medicine, Director CREST, Principal Investigator WHO study and Karnataka State Fertility study. Member WHO Expert Committee NFP.
 7. Prof. N.R. Moudgal, International expert on steroid

Biochemistry, Head of Dept. of Biochemistry, Indian Institute of Science. Member WHO, ICNR Expert Committee.

8. Dr. V. Nirmala, Associate Prof. of Pathology, St. John's Medical College, Research study on the Histochemistry of Cervical Mucus.
9. Teachers & user Couples from Bangalore District Devama, Lalithamma & the Raj couple,

I wish to place on record the unique participation of NFP users, the couples, as well as two NFP Teachers, Staffing the Family Welfare Clinic in St. Martha's Hospital and St. John's Medical Hospital both having been trained previously by Crest and being experienced users of NFP.

'Greetings were received from the Prime Minister of India-Mrs. Indira Gandhi, also from the World Health Organization and U.S. Aid (New Delhi and Washington) and others.

Workshop : The Workshop schedule was planned keeping in view the following objectives: 1) The scientific validity of the Ovulation Method and 2) Applicability of this method in India.

WORKSHOP DYNAMICS

A Report of the Workshop on behalf of the Participants, written by Dr. Malathy K. Swamy M.B.B.S, D.G.O,M.D. is given below.

The workshop commenced with the registration of all delegates followed by the Introduction and Welcome of the President of the IMA-Dr. K.S. Shekar by Dr. A.F. Mascarenhas (Faculty).

The delegates then introduced, themselves stating briefly his/her designation and his / her interest in learning about a natural method of Family Planning.

Dr. Dara Amar, Prof. and Head of the Dept. of Community Medicine, spoke on the objectives of the workshop highlighting the importance of this method and its definite place in the various methods of family planning being offered to the population. He asked his colleagues to recognize a good thing when they saw it.

Following the coffee break, Dr. M. M. Mascarenhas spoke on the "**Evolution of the Fertile Period and Cervical Mucus as a Reliable Delineator**" - a very comprehensive talk aided by slides. The aspects covered in the talk were:

1. Fertility-which depends on a) Ovulation, b) Life of the sperm, and c) Cervical Mucus.
2. The Calendar Rhythm Method of Ogino Knaus.
3. The Basal Body Temperature Method or B. B. T.
4. Symptothermic Method.
5. Research and Development of the Ovulation Method. (OM)
6. Hormonal studies; which enabled further elucidation and correlation with the peak symptom of Cervical Mucus, as very definite.

7. Cervical Mucus - vital for fertility.

8. Sperm Life and Sperm Survival.

9. The Ovulation Method (O.M.) in use.

A discussion was then conducted where the delegates were divided into 4 groups - The Oestrogen, Progesterone, Billings and Brown groups.

A lively discussion followed between the members of each group on various aspects of the O. M. which included numerous doubts and queries on the use of the O.M. in different circumstances. Some of the aspects discussed were :-

1. Differentiation of cervical mucus from Leucorrhoea.
2. Ovulation method as a method of spacing versus O. M. as a method of Limitation.
3. Effectiveness studies to be publicised.
4. Need for motivation of both the couple and the teacher - and its feasibility in the long term view.
5. Role of O. M. as a method of Family Planning in India.
6. "Need for recognition and of the Ovulation Method by State Government in order to get it properly implemented and promoted." Need for it to be introduced in the teaching curriculum of Medical Colleges for it to be recognized and learnt by the students and para medicals.
7. Need for all nurses and health workers to learn this method.
8. Its role in acquiring a child of a particular sex.

After a break for lunch a lecture on

"THE CERVIX-A-BUILT-IN-INDICATOR OF FERTILITY", was given by Prof. A. F. A. Mascarenhas. The lecture was very informative and details regarding the following aspects of the cervix was covered.

1. Anatomical.
2. Histological structure, Cervical Crypts and glands.
3. Cervical Mucus, Types of Mucus, Preovulatory and Ovulatory 'Mucus, Oestrogenic, Gestagenic and Isogel Mucus.
4. Structure of the sperm.
"The Effectiveness of the Ovulation Method is between 95-98 percent"
5. Immunological aspects of the Cervix, and presence of antisperm, antibodies in cervical mucus. Prof. Mascarenhas stressed the fact that contrary to the usual opinion of the cervix being a mere canal, it had the specific purpose of playing a vital role in fertility.

The day drew to a close with three films, which included

1. The Beginning of Life.
2. and Two on the Ovulation Method, of which one was an interview with Dr. and Mrs. Billings - the discoverers of this method.

The First Day concluded with a definite conviction that the O. M. was a scientific and effective method and could and should be considered as a useful alternative in the Family Programme.

The participants were urged to go

through the Book "The Natural Family Planning Teacher", a copy of which was given to everyone.

OCTOBER 22nd: The day began with a lecture given by Prof. Moudgal who elaborated on the manner in which progesterone levels were assayed to prove the occurrence and correlation of ovulation in a study conducted on 278 patients WHO. Blood samples (3 from each patient) in each cycle with a total of over 600 samples, were studied.

The results of the assay were sent to Geneva and it was seen that a definite correlation existed between the Peak day of Ovulation Mucus and the documented rise in progesterone levels. This went to prove that a woman could successfully detect her fertile period and the peak day by her subjective sensation of wetness and/or mucus observation. These assays gave the first information of its kind in India.

Following this Dr. V. Nirmala, gave a talk on The "Histochemistry of Cervical Mucus".

This was based on a study done by her on hysterectomy specimen of uteri, where endometrial phasing was done and the cervical mucus in each cell studied. The criteria used for this studies were:

1. Uteri taken from women in the reproductive age group.
 2. Normal cervix and 3. Adequate Mucus.
- It was seen clearly that the cervix was a very specialised organ and that its histology was geared to the production of Mucus.

Dr. Krishna Kumari, spoke on "THE OBSTETRICIAN AND GYNAECOLOGIST AND THE OVULATION METHOD."

She elaborated on the pros and the cons of the method, and made an excellent presentation of the subject from all angles.

The following are some of the points covered by her in her talk.

1. Complications of the Pill and IUCD which were often a health hazard.
2. Absence of side effects of the O.M. even when it fails on the fetus as compared to other methods, eg. PILL.
3. Accessibility of the O.M. Method as it is inexpensive or even free (learnt from user).
4. Non-devicive.
5. Non-invasive,
6. Promotes marital communication.
7. Can be used for attaining a child and sometimes even for the desired sex of the child.
8. Applicability-Time consuming, need for trained personnel. There is better understanding, amongst the rural population of this method as they are more aware of their physical changes being close to nature etc.
9. Problems of abstinence, especially with an uncooperative or alcoholic husband may exist.

Her Suggestions: Mass education to remove stigmā that NFP is unreliable and is identical to Rhythm Calendar Method.

Accessibility from the point of view of religious and cultural attitudes.

Reaching out to the villager by use of audio-visual aids etc to integrate health, hygiene, childcare and fertility awareness.

The afternoon session consisted of the following presentations.

1. Record keeping, by Dr. M. M. Mascarenhas.
2. Method of teaching clients by J. Jayseelam (NFP Teacher).
3. Integrated community Programmes by Dr. Dara Amar.
4. Organization of Family Welfare Clinic, by Dr. A. Mascarenhas and Dr. M. Iype.

The delegates were able to see the types of charts and formats used as they were on display. All the records, files and materials used in the WHO Multi-centre Trials of the O. M., which was conducted in five countries - Philipines, India, El Salvador, Ireland and New Zealand were made available for study.

The Second day was remarkable in that doctors witnessed Prof. Krishna Kumari's conviction and the fact that she used this method for her patients.

Also that it lent itself very easily to programmes on Health Education and could be integrated by paramedical or simple workers, women and men, who were trained.

Sunday October 23rd :- A talk by Dr. M.M. Mascarenhas, who elaborated on the Problem Cases encountered.

The following points were dealt with :-

1. A patient with leucorrhoea or white discharge per vaginum-This can be differentiated from Cervical Mucus by the time of appearance, the quality of the discharge and the sensation of wetness which accompanies ovulation mucus. Moreover as the patient's Anaemia was treated with diet and Iron tablets the Leucorrhoea disappeared, but the mucus persists as a sign of ovulation.
2. A breast feeding mother, does not ovulate for about 10-12 weeks, provided she fed the child at all times, and had a good and adequate milk production. Details on how to teach these women were given and a case study read.
3. The ovulation method is also useful in the Ambivalent group where the patients do not know when they want their next child.
4. A person with an alcoholic husband, would have to work out a way where she can avoid a demanding and inebriated husband. Such a husband it was pointed out would be unable to use a Nirodh and must be helped if possible to overcome his alcoholic problem.
5. **Coming of the Pill :** This is also a situation where ovulation may not be resumed immediately on discontinuation, and it is very important that the patient follows the rules. Also any discharge present may take time to stop.

However some of the best users of the O.M. were those who having experienced side effects of other methods were then referred for NFP.

Subsequent to this, Dr. Iype, spoke briefly on the difficulties being encountered by this programme in those places where it is being practised. The points were :-

1. Many confuse the old rhythm method for the ovulation method.
2. Difficulty met with illiterates is less than in literates who are often sceptical of such a simple method.
3. Difficulty in acquiring information regarding NFP, by those people interested in the method and those who would like to know more about it.

Hence if all Government and other programmes could have an NFP Teacher in the Family Welfare Programme, it would help many couples who could use the O.M. successfully.

Suggestions: Given in the earlier talk to overcome difficulties, and to strengthen the programme by Dr. Mrs. Mascarenhas were as follows :-

1. **Availability** and consolidation of all published studies, articles and statistics.
2. **Motivation** : No person is allowed to teach the method on a big scale, unless she or he has taught the method to 5 couples and followed them for 6 months.
3. **Rules for Organization of the Programme** :-

Creating Awareness: Charts, slides and films to be made available to institutions, and put within the reach of the paramedical and medical staff.

Simple teaching aids to be made available on a wide scale

4. Winning the confidence of the community, and teaching girls in the marriageable age group for *fertility awareness*.
5. *Creating a change in Attitude* :
6. Being fully convinced to be able to say I will accept for myself-hence personal and couple *Acceptance*.
7. *Availability and Accessibility* of materials and teacher for NFP. A user of the method is usually considered autonomous after 6-9 months though 97% learn it correctly in the first month. The woman is asked to visit the clinic after 1 month with her chart. She is then registered as an Acceptor.

Mrs. Shashi Deshpande, spoke very convincingly, about 'WOMEN, MEN AND NFP'. Of all the points that she spoke about the one which really impressed the listener was the emphasis that this method protects the dignity and health of the woman which is really something that has been neglected, with the dilution of standards and of medical ethics.

Dr. Rashmi Shah, Indian Council of Medical Research (ICMR), then summarised the proceedings of the workshop, and concluded that in order for the Ovulation Method to make a head way.

1. A select population has to be chosen for a start.
2. Its place amongst other method of family planning, has to be weighed in context of achieving the targets by state Governments, and set its role therein.
3. It definitely warranted a place in the Family Planning Programmes, as its effectivity and scientific validity have been so proved in studies (WHO etc.).

A Questionnaire to Evaluate the workshop was then circulated by Dr. Kumar of IGSSS, amongst the delegates, which were answered and immediately handed in. The questions and answers were as follows :-

1. **Who chose you to come for this workshop?**

Deputed by Director of Health Services or Professor of the Department of Obstetrics and Gynaecology.

2. **Did you know about NFP before?**

No previous knowledge by 21 of the participants. Others had a limited knowledge or had just heard about it.

3. **What did you hope to gain?**

A better knowledge of the Ovulation Method and how it can be adopted in one's own Family Welfare Programme.

4. **Did you find the Workshop useful?**

The majority thought it was well organized covering all aspects.

5. **What did you feel about NFP now?**

Various responses :

- a) Added more knowledge by visiting more centres where O.M. is practised, field visits, teaching, keeping records.
- b) Improved my knowledge.
- c) Very good alternative to other artificial methods. Need more information about how the government doctors can push this programme.
- d) To be integrated with other Family Planning Methods.

6. **Are you convinced about NFP'S Scientific Validity?**

The majority replied that they were convinced about the scientific validity and practical applicability of the O.M. A very few wanted to try it out in their practice before making a statement.

7. **What will you try to do now?**

- a) Some of the participants said that they would discuss with senior professors, colleagues, government officials, health ministry personnel about the O. M. and its advantages.
- b) Most of the participants planned to practise O.M. on their patients, friends, and relations.
- c) Some felt they could use O.M. where other methods like pills and loop were not effective. They also felt that people who had a religious objection to Family Planning could practise this.
- d) Some wanted to improve the present NFP set up in their hospitals.

- e) Few wanted to conduct studies on O. M.

8. What do you expect Crest to do ?

- a) Most of the participants wanted CREST to publicise the O.M. Crest can send literature, to ministries, Family Welfare Departments, Directors of Health etc. In short, various methods to make the government aware and recognise this method in a big way.
- b) Organise seminars with Family Welfare Ministry of different states.
- c) Write to women's organizations in the state.
- d) Give funds to persons interested in propagating this method.
- e) Serve as a resource and information centre about NFP. Could provide slides and films for training in NFP among medical students and patients.
- f) Distribute charts to be given to patients.
- g) Provide more information to help participants, start on O.M. Programme.

Dr. A. F. A. Mascarenhas thanked the delegates for their active participation and for the interest shown by them. He mentioned that it had been a great satisfaction to have been with them-and hosting this-THE FIRST NATIONAL WORKSHOP FOR DOCTORS ON "THE MODERN SCIENTIFIC ADVANCES AND EFFECTIVE USE OF THE OVULATION METHOD OF FAMILY PLANNING."

Dr. Rashmi Shah thanked Dr. and Mrs. Mascarenhas, the faculty and organizers on behalf of the delegates and expressed that the three days spent at the workshop had successfully initiated an interest in NFP method and interest which was bound to grow and fructify.

PARTICIPANTS

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7. Peter Schubarth M.P.H., Swiss Govt Employee-Sector Health-Integrated Hill Development Project (IHDP) Nepal.
8. M.J. Iype M.B.B.S., D.A. G.C.M. Anaesthetist-Government Pentland Hospital-Vellore-Tamil Nadu.
9. Sangamithra Gopal M.B.B.S, D.G.O. Tutor of Obst. & Gynaecology, St. John's Medical College-Bangalore.

10. Annie P. Ittyavira M.D. D.G.O, Prof in Obst., & Gynae, Medical College-Kottayam-Kerala
11. K. Rathnam M.D. D.G.O. Prof. of Obst. & Gynae, Medical College, Calicut-Kerala.
12. N. Kshiroda Devi-M.B B.S , D.G.O. M. D. Senior Gynaecologist Central District Hospital, Imphal-Manipur.
13. Malathy K. Swamy M.B B.S., M.D. Obstetrician & Gynaecologist St. Martha's Hospital-Bangalore.
14. Dr. Vidyamani Lingegowda MBBS, MRCOG. Prof. in Obst. & Gynae, Kempegowda Institute of Medical Sciences, Bangalore.
15. Bellarmine Mascarenhas MBBS, DGO, Head of Dept, of Obst. & Gynae; St. Thomas Hospital N. Arcot Dist. Tamil-Nadu.
16. Indira C. Shanthi MD, MRCOG, Lecturer in Obst. & Gynae, Bangalore Medical College Bangalore.
17. Shivdev Singh Sidhu MBBS, DOMS, PCMS (I) Senior Medical Officer P.H.C.-Primary Health Centre Sahnawal Ludhiana Punjab.
18. Mary Padmini Jasper M.D., D.G.O, Lecturer, Dept of Obst. & Gynae, Christian Medical College Hospital (C.M.C) Vellore.
19. S. Rajarathnam MBBS, (D.M.O.)-District Medical Officer. Vellore-North Arcot District.
20. Lata R. Inamdar MBBS. DGO, Lecturer in Obst. & Gynae, Bangalore Medical College-Vani Villas Hospital -Bangalore.
21. Anessio Fernandes, MBBS, DGO, Resident in Gynaecology-Goa Medical College-Ribander Hospital-Goa.
22. R. Jayalakshmi MD, DGO, Prof in Obst. & Gynae, Madurai Medical College-Madurai.
23. S.M. Susheela Prof. in Obst. & Gynae, Tirunelveli Medical College & Hospital Tirunelveli-Tamil Nadu.
24. S. Ananthalakshmi, M.D., D. G. O, Prof. of Obst. & Gynae, Head of Dept-Programme Director (Postpartum) Tirunelveli Medical College, Tamil-Nadu.
25. K. Kalavani MD, DGO, Human Reproduction Research Centre (ICMR) Research Officer-Government Rajaji Hospital-Madurai-Tamil Nadu.
26. Manjula S. S., MBBS, DGO, M. D. Lady Medical Officer, (L. M. O.) I. I. M. Medical College - Davangere.
27. Hanumanthappa Pushpa MBBS, MD, L.M.O. Local Fund Dispensary Seshadripuram--Bangalore
28. April C. Swer MBBS, DMCW, Chief Medical Health Officer, Urban Family Welfare-Ganeshdas Hospital Shillong - Meghalaya.
29. S. Soundararaghavan Junior Specialist in Obst. & Gynae, E. S. I. S. Hospital--Pondicherry.
30. Cheryl A. Aranha MBBS, Senior Resident Cama & Albless Hospital Fort-Bombay.
31. P.V.S. Kumar Head, Project (Analysis Dept.) Indo - German Social Service Society (I. G. S. S. S.) New Delhi.

32. G.A. Parmar Health Extension Officer, R. H. & Family Welfare Training Centre, Ahmedabad, Gujerat.
33. Mangalsundari MBBS, DGO, Asst. Surgeon - Govt. Maternity Hospital Pondicherry.
34. Venugopala Raju MD, Population Centre, (I P P) Malleswaram, Bangalore.
35. G.V. Kamath, MBBS, L.I.C. Colony Bangalore.
36. Shivanadappa, MBBS, Health & Family Planning Training Centre, Bangalore.
37. Lucio Fernandes, MD, MBBS, Lecturer - Dept. of Obst/Gynae, Ribander Hospital-Goa.
38. C. Vyas MD, Medical Officer, Urban Family Welfare Centre, Ahmedabad-Gujarat.
39. Rathna Sundari MBBS, LMO, Urban Family Welfare Centre, Ahmedabad Gujarat.
40. Dr. Ravi Raj William Chief Coordinator, Rural Development Project Hoskote - Bangalore.
41. A. Kamalakumari MD, DGO, Obstetrician & Gynaecologist, Civil Surgeon, Govt. Headquarters Hospital, Salem - Tamilnadu.

Evaluation of Participants :

From Dr. P.V.S Kumar Inde German Social Service Society-New Delhi.

Through this letter I would like to thank you for permitting me to attend the workshop-and you can count on an-

other 'Converted' Convinced NFP (User) advocate. I appreciate your untiring efforts to make the workshop create an impact on the participants.

From K.R. Huilgol Post Partum Centre, Karnataka Medical College, Hubli.

Respected Madam,

I am glad to inform you that I have started convincing the people regarding the "Ovulation Method." I have decided to take up hundred cases at present. I shall write later regarding the success of the difficulties I come across.

From the Director of Health Services and Medical Education - Kashmir.

You are requested to indicate to us the dates and time that is suitable to you to conduct this workshop. You are requested to come with Prof. A. F. A, Mascarenhas, your husband, Prof. & Head of the Dept. of Surgery and Medical Superintendent, St. John's Medical College, Hospital - Bangalore.

From Dr. Fernandes - Goa Medical College, Ribander Hospital-Goa.

One very important thing I gained was, I was not at all aware of this particular Method i.e O. M. after attending the workshop, I not only cleared my mind about a lot of things about NFP but am fully convinced about the method which I should think would be a very good alternative for other methods of Family Planning.

From Shivdev Singh Sidhu - P. H. C. Sahnewal-Ludhiana, Punjab.

It is one of the methods of Family Planning which can be very useful to the Community.

From F. R. Choudhury - Sibsagar Civil Hospital - Assam.

I will select cases mainly who are not interested in other methods and to implement the programme.

From Rathan Sumdari - Urban Welfare Planning Centre - Bangalore.

As a Lady Medical Officer of a Family Planning Centre, I have already

met some women, who could not follow the other usual methods continuously. So, now I am planning to practise for a small group to start with.

From Jasper - C. M. C. Hospital, Vellore.

To be frank, though I knew about this method, I was not aware of the fact that it was implemented as a big programme till I attended it.

I

The Ovulation Method - A Natural Method of Family Planning

MARIE MIGNON MASCARENHAS M.B.B.S. D.P.H. F.R.I.P. H.H. (Lond)

PRINCIPAL INVESTIGATOR WHO STUDY

Scientific and technological miracles have been achieved in this century yet nothing has surpassed or even equalled nature. In particular, there is no equal to the natural family planning methods as regards safety, wide applicability, reliability, cheapness, and dependence on the couple (not on doctors or paramedical staff).

Some of the deterrents to widespread effective use of family planning in India—poverty, non-acceptability of most methods available, fear of side effects, and aversion to using irreversible methods—still exist, in spite of India being the first country in the world to have established a national family planning program (1952) and in spite of considerable incentives offered to family planning acceptors.

Natural family planning can be considered a new concept of health care, a step in the right direction toward self-help and positive health, reaching out as it were to nature for guidance. Moreover, it fosters the establishment of a “self-energized family,” the aim of community health workers in developing countries.

Some Cultural Considerations

Basically, the majority of Indians irrespective of caste or religion, have

been indoctrinated to practise abstinence of various kinds, for example, fasting for religious or social reasons, abstinence from sleep, abstinence from speech, sexual abstinence during Ramzan (Muslims) and Adimasaam (South Indians). 1 “Aadi” month, approximately July 15 to August 15, is the time when “Viradham” or abstinence from intercourse is observed in order to avert the birth of children the following summer, when infant mortality due to dehydration is high. This practice is followed extensively in Tamil Nadu and Andhra Pradesh in South India.

Tribals and other people have for centuries believed that in the “red period” (menstruation), intercourse does not result in pregnancy, whereas in the “white period” (mucus), it does. Our enchantment with modern technology should not lead us to neglect self-control methods that have been culturally acceptable for ages. With all this background there is a great scope for wider use of the Billings’ Ovulation Method.

The Ovulation Method

“The Ovulation Method (OM) as a method for spacing is ideal for developing countries.” 2 It is based on the

woman's self-recognition, through the subjective sensation of wetness in the genital area, of the fertile and infertile phases of her menstrual cycle. All the mucus days preceding the "peak symptom" plus the following 72 hours are the couple's presumed fertile days. Wetness is maximum on peak day.

The woman is also asked to observe mucus at the vulva. However, since neither toilet paper nor underwear is used by the majority of our sari-clad women, precedence is given to sensation. In fact, women with leucorrhea or cervicitis can follow the method satisfactorily.

With a red and blue pencil, the woman charts a daily record of sensation and discharge (The supervising teacher keeps a duplicate chart). Red indicates menstruation or spotting; blue the dry days. Peak, * confirmed in retrospect, is indicated with a cross.

Our rural people (82 percent of the population) readily understand the analogy of the planting of a seed in the pre-monsoon and monsoon (rainy) season, when the soil is soft and moist. They know that no seed is planted in the dry summer, when it will die in the hard soil: so also, in the body of a woman, the seed of a man can grow into a child only when her cervix is soft and moist with the mucus that nourishes and strengthens the man's seed or sperm. Also cows are inseminated when they produce mucus at the cervix, a routine observation for both the farmer and his wife.

In those developing countries where WHO Study of the Ovulation Method

was carried out, there were indications that the couples who used this method found it safe, effective and acceptable. This finding should be significant to governments and organizations that are formulating family-planning policies.

CREST (Centre for Research Education Service and Training for Family Life Promotion) in Bangalore, South India was actively involved in this WHO study. 1975-1979. 1978-1981 we also worked in the Karnataka Study a state-wide survey of 2,790 couples accepting the OM. I shall present some salient features of these two studies.

1. *Bleeding or Menstruation.* In India, the Philippines and El Salvador (the three developing countries where the WHO study was carried out) bleeding or menstruation averaged only 4.4 days per cycle, as against 5.6 days in the developed countries.

2. *Length of the fertile phase.* The fertile phase (defined as days of sticky mucus plus days of slippery mucus plus 3 days) averaged 8 days as against 10.6 days in the developed countries. Although days of sticky mucus were included in the WHO protocol as fertile days, some "autonomous" (expert) couples chose to use them. The probability of pregnancy for these "autonomous" couples was .024 to .500 as shown by the statistics in Table I of "A prospective Multicenter Study of the Ovulation Method of Natural Family Planning - Characteristics of the Menstrual Cycle and of the Fertile Phase" (WHO, Geneva, 1982).

3. *Warning of the peak day (PD):* Adequate warning of the approach of maximum fertility is given. In our study

* Peak is day of maximum fertility

TABLE 1

Chance of Pregnancy by Phase of Cycle and Days from Peak

Phase of Cycle	Relation to PD (Peak Day)	Cycle with Intercourse	Number of Pregnancies	Probability of Pregnancy
Sticky ("infertile") mucus	PD-minus-4 or earlier	81	2	.024
Sticky ("infertile") mucus	PD-minus-3 to PD-minus-1	6	3	.500
Slippery mucus	PD-minus-4 or earlier	17	6	.353
Slippery mucus	PD-minus-3 to PD-minus-1	22	12	.546
Peak Day	PD 0	9	6	.667
Post Peak	PD 1	18	8	.444
Post Peak	PD 2	44	9	.205
Post Peak	PD 3	112	10	.089
Outside the fertile period . . .		6.158	22	.004
All phases . . .		6.437	78	.012

TABLE 2

Understanding of the Ovulation Method (WHO Study)

	First Cycle				Second Cycle				Third Cycle			
	Excellent or Good		Poor		Excellent or Good		Poor		Excellent or Good		Poor	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Auckland	107	(89.0)	12	(10.1)	109	(93.2)	8	(6.8)	112	(99.1)	1	(0.9)
Bangalore	197	(96.6)	7	(3.1)	197	(97.0)	6	(3.0)	193	(97.0)	6	(3.0)
Dublin	208	(88.9)	26	(11.1)	207	(93.7)	14	(6.3)	209	(97.2)	6	(2.8)
Manila	127	(95.5)	6	(6.5)	126	(98.4)	2	(1.6)	123	(98.4)	3	(1.6)
San Miguel	129	(82.7)	27	(17.3)	134	(88.2)	18	(11.8)	140	(94.6)	8	(5.4)
Average		96.6				97.0				97.0		

TABLE 3

OM Continuation Rates in India

	WHO Study	Karnataka State Study
No. of couples entering	278	2,790
Continuation rate		
After 6 months	84%	93.0%
After 1 year	78%	75.0%
After 2 years	71%	70.8%

The Ovulation Method in India

Table 4

Pregnancy Rate for Entire WHO Study
(Modified Pearl Rates : per 1,300 Cycles)

Reasons for Pregnancy	Auckland	Bangalore	Dublin	Manila	San Miguel	All
Method-related	6.8	0.5	3.7	0.8	0	2.2
Inadequate teaching	0	0	3.5	0.8	0	0.3
Inaccurate application of instructions	12.6	2.8	3.7	0.8	2.4	3.9
Conscious departure from rules (User-related)	9.7	15.2	9.3	15.5	30.8	15.4
Uncertain	1.9	0.5	0.5	0	0	0.5
Total rates	31.0	19.0	17.7	17.9	33.2	22.3

the average number of pre-peak mucus days was 5-6 (days of sticky mucus plus days of slippery mucus minus 1) (In 149 instances (2%) there was only 1 day of mucus before the PD; in 479 (7%) there were 2 days; and in 649 (10%), 3 days. Thus, the experienced couple can have sexual intercourse with little chance of becoming pregnant in the preovulatory phase. When we consider that no contraceptive method is 100% effective inspite of the colossal amounts spent on research- the natural methods assume even greater significance.

4. *Understanding of the method:* The illiteracy, poverty and marital problems encountered in many couples did not prove to be a barrier to their understanding, acceptance and use of the method. Illiterate women find it very easy to make the recording every night. Because of the coloured chart the husband can tell at a glance the fertile or infertile status of his wife.

5. *Continuation rates :* Table 3 gives the continuation rates of two studies in

India. The rates were significantly high. In developing countries the dropout rates in family planning are generally high. When compared with other family planning methods, the continuation rates in India are much higher for the Ovulation Method than for any other method of spacing. (Research at all)

6. *Effectiveness.* The method effectiveness is very high (Table 4).

7. *Libido.* Reluctant husbands can be motivated by the finding in two research studies, the All-India Study of 3,530 couples and the Karnataka Study of 2,790 couples, where the average frequency of intercourse was not decreased. In fact, there was a marginal increase from 1.7 to 1.9 acts of coitus per week.³ Also, the women's libido was found to be significantly higher in the pre and postmenstrual phases. (Infertile periods).

Friction caused by abstinence was experienced by only 1.7 to 4.6% of husbands in the Karnataka Study, in which detailed records on this aspect were maintained throughout the two-year

period; 97% of the husbands were co-operative. The majority of these couples were non-Christian (51.5% Hindus and 8% Muslims).

8. *Enhancement of the women's dignity*

In developing countries, where the women's dignity needs to be confirmed, an educational method that integrates the teaching of health, hygiene, and nutrition is particularly appealing. "Fertility knowledge is fertility control." The woman finds that she can recognize her femininity complements her husband's masculinity and self-control.

The method also encourages breast-feeding and stresses its importance. "The contraceptive effect of breast-feeding is a physiological phenomenon of major importance and in developing countries prevents more pregnancies than all the other methods of contraception".⁴

The husband's responsible behaviour and the wife's faithful observations and charting make for a true marital partnership.

Conclusion

From these two highly technical studies we concluded that today's young people form their attitudes toward sexual behaviour, marriage and children, in their adolescent years. Family-life edu-

cation at this time and adequate preparation for marriage, are vital for the facilitation of communication in marriage.

Now that the scientific validity and practical applicability of the OM are established, CREST has dedicated itself to furthering an education aimed at stabilizing healthy relationships and sound values among teachers, youths and young couples.

In the words of Thomas Jefferson, we believe that "the ultimate power of society is in the people themselves, and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion by education".

Notes :

1. Krishna Kumari et al., paper presented at Dec. 1981, All-India Obstetrician and Gynaecologist Conference Calcutta.
2. *Centre Calling*, vol. 16, No. 9 (Sept. 1981).
3. *The Karnataka Study* (Bangalore : CREST, 1981).
4. *IPPF Medical Bulletin*, vol. 16, No. 2, April 1982.



**Professors from Madurai, Tirunelveli, Punjab,
Vellore etc. in Session.**



**Doctors from Governments of Manipur, Meghalaya,
Assam, Pondicherry and Gujarat where the Ovulation
Method has been launched already.**



**Dr. Rashmi Shah of the Institute for Research
in Reproduction, chairs Recommendation Meeting.**



**Satisfied users now "Barefoot Teachers" with
Doctors in Session.**

THE MOST NATURAL WAY TO PLAN YOUR FAMILY

WHAT IS NATURAL FAMILY PLANNING?

It is a method of preventing conception by using the awareness of a woman's fertile period.

Remember that women are infertile most of the time and therefore abstinence from sexual intercourse during the fertile period will prevent conception.

How does one identify the fertile period

The Ovulation method helps a woman to identify the fertile period in her menstrual cycle by observing the changes in her genital sensations and in the cervical mucus.

How is this done?

Every woman has a discharge of mucus that comes from the cervix only at the time of Ovulation. This discharge gives her a typically wet sensation. Depending on the time of the cycle, the mucus changes its characteristics. The wet sensation and quality of the mucus will give her warning of the approach of Ovulation and this coincides with the fertile period. The Ovulation method helps a woman to recognise and identify these changes.

Is this not a difficult process to learn?

Not with good teaching. A woman keeps a chart and learns to interpret the observations under a teacher's guidance. In a study 97% of women learnt this correctly in the 1st cycle. She realises that she is learning something about her body that she always knew, but didn't know that she knew, or that it indicated her fertile period.

How long is the period of abstinence in each cycle?

It varies from 5 to 9 days.

Will not this cause stress and tension in marriage?

On the contrary, coming together, opening up communication on matters that were not spoken before, and the freshness and spontaneity that comes after a few days of abstinence... all this helps bring a couple closer together.

How effective is the method?

It depends on two things. 1. The quality of teaching 2. The motivation of the couple... Provided the couple has understood the requirements of the method and really wish to avoid conception, this method is 98% effective.

Is there anyone who cannot use this method?

Scarcely anyone. The regularity or the irregularity of a woman's cycle does not matter, the fertile period can still be detected through the mucus symptoms. Breast feeding women pre-menopausal women and women going off the pill... they can all use this method.

What are the main advantages of this method?

- It's safety—
1. It uses no chemicals, no surgery, needs no device.
 - 2. It introduces nothing into a woman's body.
 - 3. Equally important, the natural body processes are not disturbed.
 - 4. It is therefore entirely harmless.

For details contact:

CREST

14, High Street, Bangalore-560 005.

II

Paper Read at October 1983

National Workshop on O. M. Bangalore

"THE EVOLUTION OF THE FERTILE PERIOD & CERVICAL MUCUS AS A RELIABLE DELINEATOR"

by M. M. Mascarenhas,, MD.

When the question of effectiveness of a family planning method invariably arises the doctor (or nurse or teacher) has to acknowledge that there is no known method with hundred percent effectiveness. The Indian Council of Medical Research in its *Bulletin* of December 1981 admitted "We have to accept the fact that at the moment there is no ideal contraceptive free from side effects and complications suitable for use in all women".

The World Health Organization and every country with research facilities has spent, is spending, and will be spending millions on reproductive research on discovering an easy, effective and acceptable way to detect and control fertility.

At the present moment we have a variety of fertility control methods of which the most effective ones often have repercussions, or others which enjoy a limited application.

Into this picture we can now confidently insert the Ovulation Method

(O.M.) the research, the scientific verification and validity of which is now beyond question, and which we will share together in these three days. Indeed as was remarked by a person no other than Prof. James Brown of Melbourne University "Ten times more research has gone into the O. M. than that done for any other method of F. P." Prof. Brown was also fully involved while in Edinburgh, in the studies of the contraceptive pill (F.P.).

In perfecting the O.M. Research efforts have been directed to 1) Identifying the Fertile Period 2) Delineating its beginning and the end, and 3) Finding an indicator that would be easy to use by women in their reproductive phase and - 4) Effective enough to warrant its applicability without any additional aids or tests.

FERTILITY: Fertility depends on 1) Ovulation 2) Life of the Sperm and 3) Cervical Mucus."

Ovulation occurs on one day only in the cycle. One egg (or more occasionally

becomes available for fertilisation on that day. The ovum lives less than one day as is well known. The sperm lives from a few hours only or upto 3 days and very rarely upto 5 days. This variation of sperm life and *therefore of the fertile period* depends only on the suitability of the mucus from the cervical glands in the uterus with which they come in contact during intercourse.

(J.J. Billings in the O.M. Publ. 1976 Australia)

“The ovaries of a female child contain at birth all the ova she will even possess. Before the start of her reproductive life she does not ovulate, nor does she ovulate when the reproductive era is over. Between the menarche and the menopause an-ovulatory cycles may occur spontaneously or be induced by medication. For a variable time, perhaps a year or so following the onset of menstruation, the cycles are an ovulatory. Later the development of the characteristic mucus pattern enables the occurrence of ovulation to be indentified” (Symth and Watson).

OVULATION: The disposition of the days of fertility is determined by the occurrence of Ovulation. The ovarian cycle involves a definite series of events. It is customary to use the menstrual period as the obvious marker, although in truth it marks the end rather than the commencement of the cycle. Just before and during the period, ovarian activity is a low level, and this provokes a hypothalamic response, with the release of a hormone which stimulates the pituitary gland to produce the follicle stimulating hormone (FSH). This results in a development of a batch of

follicles within the ovary. It takes seven days or more for one of these to develop into a ripe follicle ready for ovulation.

The follicle produces increasing amounts of oestrogens, which prepares the vagina, cervix, uterus and fallopian tubes for transport of spermatozoa, and ovum ready for fertilization. The oestrogens also modify the production of the pituitary gonadotrophins and is involved in the massive release of luteinising hormone (LH) from the pituitary, which causes rupture of the ripe follicle or *Ovulation*.

After ovulation the follicle is converted into the corpus luteum which produces the second ovarian hormone the progesterones, as well as more oestrogen, and these two groups of hormones prepare the endometrium of the uterus for reception of pregnancy.

The ripening of the follicle, the occurrence of ovulation and the length of the luteal phase ending with the menstrual bleeding, occupy a relatively constant period of time. Substantial variations in the length of the cycle occurs ahead of ovulation, and is the result of delay in reaching the level of FSH required to stimulate growth of a new batch of follicles.

But the luteal phase may sometimes be short, particularly during the early cycles after pregnancy and after coming off contraceptive medication. If the corpus luteum is poorly developed, the luteal phase will be short and the cycle “INFERTILE” even though ovulation has occurred, I.e. if conception follows, the pregnancy will not be sustained.

Ovulation therefore follows a hormonal sequence extending over several days, and cannot be suddenly provoked e.g. by illness, emotional shock, or sexual intercourse. The idea that sexual intercourse may cause ovulation is based upon ignorance of human reproductive physiology and is a mistaken idea of what occurs in some animals such as the rabbit.

However, ovulation even when imminent may be *delayed* by influences such as fairly severe emotional upset and infectious illness. This does not prevent the successful application of the Ovulation Method but needs to be remembered in order to avoid confusion.

Two or more ovulations may occur in a normal cycle, or may be provoked by 'fertility drugs' but those multiple ovulations always occur on the same day. There is only one ovulation day in any cycle, and when ovulation occurs a menstrual period will follow, in the absence of a pregnancy. On the other hand, bleeding, even reasonably regular phases of bleeding, may occur in imitation of normal menstruation, in the absence of any ovulation.

We owe a great debt to the WHO study of the Ovulation Method where we were able to study the effect of stress and were able to confidently assure women that only stress of a fairly serious degree would postpone or delay ovulation. If the woman is aware of this she knows that she cannot be 'caught unawares' by a sudden or early ovulation, but rather that she should be prepared for a delay in cervical mucus symptoms.

THE RHYTHM METHODS OF OGINO-KNAUS:

The contribution of Dr. Herman Knaus, an Austrian, to our knowledge of female fertility began in 1925 with his experiments on various animals which he later extended to humans. Knaus and a Japanese called Sahako demonstrated that when the uterus is under the dominance of oestrogens the muscle of the uterus will respond to an injection of the posterior pituitary hormone Pituitrin. This response was measured by inserting a rubber balloon into the uterus, and attaching it to a manometer. After ovulation the tone and activity of the uterus decreased greatly due to the action of the progesterone, produced by the corpus luteum. Therefore, Knaus argued, the refractory behaviour of the uterine muscle which could be demonstrated by his test was an indication, that ovulation had occurred.

Knaus came to the view that the corpus luteum had a fixed functional life of 14 days before the menstrual period insisting that ovulation occurred precisely 14 days before the menstrual period. Even if Knaus's conclusions were the result of an intuitive perception of a general rule, there is no doubt that his general thesis was correct, namely, that ovulation bears a definite time relationship to the following menstrual period, *and not to that which preceded it.*

Dr. Kayusaku Ogino in Japan during the 1920's examined the ovaries of his patients during the course of abdominal operations, noting whether on a given day an unruptured follicle or a corpus luteum was present. He concluded that ovulation occurs between 12 and 16 days

before the subsequent menstrual period.

The general scientific accuracy of the observations of Ogino and Knaus that Ovulation had already occurred and on which the Rhythm Method is based, is beyond argument. However, a retrospective determination of the time of ovulation is of no value for family planning, and it became necessary to adapt the knowledge to a prediction of the time of ovulation within the menstrual cycle, by calculations based on the observed variations of the length of the menstrual cycles in the particular woman.

It is obvious that the fundamental problem with the Rhythm Method i.e. the counting of days is the problem of the universal irregularity of menstrual cycles. No woman has cycles which are consistently regular and once the cycle length varies from those on which the calculations are based, predictions are invalid. Moreover, efforts were made to allow for sperm survival by charts providing for two, three or up to five days, without the least knowledge of what it might be that determines it, there being merely some general idea that sperm survival time is a function of the particular male concerned. Knaus accepted evidence from animals whose testicles lie in a scrotum outside the body, that their sperm cells are not capable of fecundating the ovum beyond 48 hours after entering the female genital tract.

THE TEMPERATURE METHOD :

In the year 1905 Van de Veldh suggested that the occurrence of ovulation may be reflected in a record of a woman's body temperature. Some 30 years later the accuracy of this hypothesis was veri-

fied, and by the 1950's the Basal Body Temperature (B. B. T.) Method was being employed as a supplement to the Rhythm Method in different parts of the world, in what was called Temperature Rhythm."

The outstanding *advantage* of the B. B. T. Method over the Rhythm Method is the fact that it pays attention to *ovulation* rather than to menstruation this means that it may be able to define days of infertility between the time of ovulation and the subsequent menstrual period, and it does so irrespective of regularity or otherwise of the cycles. However, it cannot predict the occurrence of ovulation in advance, and is able only to indicate a few days afterwards that Ovulation has occurred.

RESEARCH & DEVELOPMENT OF THE O. M.

In 1962 Professor James B. Brown started work at the Royal Women's Hospital - Melbourne. He had already achieved considerable prominence for his refinement of tests to measure the urinary level of ovarian oestrogens (when working under the auspices of the Medical Council of Great Britain, in Edinburgh known as "Mr. Oestrogen"). He accepted the invitation to collaborate with the Billings team in measuring the urinary levels of oestrogens and pregnanediol in clients.

By now a prolonged clinical study of the cervical mucus with formulated rules regarding its application in the regulation of births, had been made as was necessitated with cooperation from those whose problems had been solved and were now anxious to proceed with

another pregnancy. The *peak day rule*, for example was worked out by clinical observations before any hormonal studies were undertaken.

HORMONAL STUDIES :

“The hormonal studies also enabled further elucidation of the peak symptom of the cervical mucus, which means essentially the recognition of the time of change in the mucus produced by the elevation of the serum level of progesterone. The progesterone has a very important effect upon the physical characteristics of the mucus to render it impermeable to the sperm cells, and this change is accompanied by the disappearance of the “Fertile” characteristics, particularly its tendency to form long strings or *spinnbarkeit*, and its low viscosity, manifested by its ready appearance outside the vagina to produce a lubricative, slippery sensation externally. Again contrary to the general description of ovulatory mucus we found in text books it was determined that the *Spinnbarkeit* phenomenon might disappear a day or so before the mucus lost its lubricative quality, and that it was a change from the net sensation produced by the lubricative mucus to a sensation of dryness and to mucus of a tacky, sticky consistency that gave the real indication of the peak symptom and therefore of the time of ovulation.

It now became possible to monitor the ovarian hormone levels in a number of circumstances, and thus to check the validity of the rules independent of the biological test of pregnancy. Later the estimations of the ovarian hormones were combined with the measurement of the pituitary gonadotrophins with assis-

tance of Dr. Henry G. Burger, Director of the Medical Research Unit at the Prince Henry Hospital in Melbourne and coordinator of the WHO study.

At first the excretion patterns of Oestrogens, oestrodiol and oestrone were examined. When it was shown that the biological effects of ovarian oestrogens as determined, for example by endometrial biopsy, correlated better with the sum of the three oestrogens than with any one oestrogen, measurements were made of the total oestrogen content of the twenty four specimens of urine.

“The women who participated in our own researches (about twelve thousand assays of ovarian hormones were done, have made a most important contribution to scientific knowledge, because they have comprised a group whose normal physiology has been undisturbed by medication, and who have been highly motivated to keep accurate records of their cycles”.

Moreover, four hundred of our women clients have cooperated by providing twenty four hour specimens of urine and blood samples as well. The minimum study has been performed on weekly specimens taken for six weeks, but in many instances there have been daily specimens.

In the case of some premenopausal and lactating women, the estimations have continued with weekly specimens for several months, even a year or more. This scientific verification has been the basis of the simple rules of the Ovulation Method which have been published, the hormonal estimations having verified the accuracy of the rules which had been established by the clinical studies.

During the ovulatory cycle the urinary oestrogen values are low during the first week (10 – 20 mcgms/24 hr) rising to a peak before ovulation (40 – 100 mcgms/24 hr) then falling again, only to rise to a second maximum during the luteal phase (30 – 100 mcgms/24 hr). The urinary pregnanediol excretion remains low until ovulation (less than 1 mcgm/24 hr) then increases 5 to 20 fold, being greater than 2 mcgm/24 hr within seven days, as the corpus luteum develops.

In the complete absence of ovarian activity as in long standing amenorrhea and after the menopause, the urinary oestrogen values remain more or less constant at less than 10 mcgm/24 hr. There is a zone of uncertainty between 10 to 20 mcgms/24 hr. Fluctuating values above this indicates follicular activity within the ovary."

In an ovulatory cycle there are two main patterns thus :

1. After a series of days with levels of oestrogen above 20 mcgms/24 hr some "breakthrough" bleeding occurs, followed within the next few days by a further rise of oestrogen values and ovulation.

2. The other pattern is that of a rise to an oestrogen peak as if ovulation were about to occur, but the values then fall continuously without ovulation, "withdrawal bleeding" occurring within a week of the highest level of oestrogen may precede a transient rise in pregnanediol excretion before the onset of bleeding. There are a number of variations including the absence of any bleeding before the next phase of follicular activity.

3. There are also some variations in ovulatory cycles, which may cause infertility, for example, the mid-cycle oestrogen peak may be much reduced and the oestrogen values may remain at very low levels throughout the luteal phase even though the pregnanediol values are barely above 2 mg/hr.

These investigations of ovarian activity may be done by the daily monitoring, by weekly tracking, or by a single collection at the mid-luteal phase to prove that ovulation has occurred. (The last test was used in the W. H. O. Study).

It is assumed that ovulation occurs about one day following the mid-cycle LH peak and one day following the urinary oestrogen peak, and that it occurs before a clear cut rise in urinary pregnanediol.

In a group of about sixty women the pituitary and ovarian hormones were correlated to determine the day of ovulation, and the results compared with the stamp records kept by the women providing these blood and urine samples. The mean interval between the peak of the mucus symptom and ovulation was 0.1 day and the mean interval between the onset of mucus indicative of possible fertility and ovulation was 6.3 days.

CERVICAL MUCUS – Vital for Fertility :

The scientific information was surprisingly definite, namely, that the occurrence of a fertile ovulation is accompanied by the secretion of a specific type of mucus from the cervix of the uterus. The accumulated facts dealt almost exclusively with laboratory observations of mucus aspirated from the cervix, but it was already known that women sometimes remarked upon the presence of the

mucus when it was regarded as an interesting observation which could be used to assist the interpretation of other parameters, such as B. B. T. which was also undergoing study at this time. It was even known that the cervical mucus acts as a filter to block the passage of abnormal spermatozoa, and that close to the time of ovulation the mucus promotes the migration of sperm cells into the cavity of the uterus.

However very little attention has been paid to the fact that the occurrence of the cervical mucus is a familiar observation to virtually every fertile woman, and that she can be taught to record the characteristics of the mucus accurately and then to interpret their significance correctly.

Infertile ovulations are known to occur in some young women who have difficulty in conceiving. These infertile ovulations are a more frequent observation in the pre-menopausal group. On a number of occasions intercourse occurred close to ovulation which was verified by hormonal estimation, and accompanied by a typical temperature shift, yet pregnancy did not occur.

In a series of 98 women, 23 out of 43 women over 45 who had hormonal investigations were demonstrated to be ovulating. It is logical therefore to interpret these results to indicate that ovulation of itself is not synonymous with fertility. The observations of the cervical mucus in this group were interesting. Four of the women who were experienced in the use of the Ovulation Method made statements as "No change in the mucus", "Still good mucus", "Normal mucus" and "Less but still has a pattern". Two women reported experiencing less mucus

in most cycles.

The laboratory tests also demonstrated that the total oestrogen level. *Eight of the group aged more than 45 years who were shown to be OVULATING* had very high oestrogen levels, reaching a peak of 100 to 214 micrograms in 24 hours, yet they reported insignificant or a typical mucus. In one case the woman had an oestrogen level of 179 micrograms before ovulation and a significant rise of pregnanediol after ovulation, yet she reported insignificant mucus, used the day before ovulation for intercourse and did not become pregnant.

In her research to determine the end phase of fertility in women Dr. Lyn Billings first established a definite correlation between hot flushes, the absence of mucus, low oestrogen values and the temperature chart. Those women and their husbands who were willing to do so were encouraged to use days for the sexual relationship when the temperature was low there was no mucus and some hot flushes were experienced. Gradually it became clear that the absence of mucus was a reliable reflection of low oestrogen values, and that there was necessarily an interval of several days before the oestrogen levels could build up to a point where the hypothalamus and pituitary gland would be stimulated to provoke ovulation. Just as had been the case with regard to the peak symptom of mucus, it was a sensation and not a visual observation which was the vital clue, a clue women could adequately understand. Thus the "DRY DAYS" PROPERLY UNDERSTOOD WERE DEFINED AS THE DAYS OF INFERTILITY BEFORE OVULATION.

SPERM SURVIVAL: During the years these investigations have been in progress, there has been an accumulation of much more knowledge about the importance of the cervical mucus in the achievement of conception thus :

1. The early mucus and post-ovulatory mucus create a barrier to the penetration of spermatozoa. Close to the time of ovulation changes in the physical characteristics of the mucus promote sperm migration.

2. The mucus forms a protective envelope for spermatozoa so that they are unharmed by the environment of the vagina, and escape phagocytosis

3. The mucus functions as a filter whereby dead, abnormal or unfit spermatozoa are prevented from reaching the uterine cavity.

4. The mucus nourishes the spermatozoa by supplementing their energy requirements.

5. The mucus may participate in the capacitation of spermatozoa, the process by which they get capacity to fertilize the ovum.

SPERM LIFE :

What is the average sperm survival time ? The answer is that it is something between 2 and 3 months. That statement may at first be a surprise, but it is a correct answer to a question of sperm survival within the husband's body following their manufacture within the testes, when they are in storage in various parts of his genital tract. This is the reason why after a vasectomy operation the surgeon has to point out that the husband must allow 3 months and per-

haps a dozen ejaculations before he can be assumed to be sterile.

So we must ask the question again. What is the sperm survival time after their ejaculation into the female genital tract ? We need to know the range of possible survival time, and we need to know what it is that determines the duration of sperm survival, not merely the survival of cells which are morphologically normal under the microscope, not merely the survival of cells which are still motile, but the survival time of sperm cells which have retained their virility i.e. their capacity to fertilise the ovum.

There is evidence that sperm survival within the female genital tract is predominantly determined by the characteristics of the cervical mucus.

CONCLUSION

That means that the Ovulation Method takes as its reference that WHICH is fundamental to conception, as it does not only the occurrence of ovulation but the fact that at a particular point in the cycle there is now present within the woman's body a secretion which may preserve the sperm cells in a healthy state for a few days awaiting ovulation.

THE OVULATION METHOD : Of all the Ovulation signs and symptoms the mucus secretion is the most significant.

It is based on self recognition by the woman of her fertile and infertile period by the subject sensations of wetness in her genital areas. The crypts of the cervix secrete E (Oestrogenic) type mucus in response to (Oestrogenic) stimulation which is also responsible for Ovulation.

A "trigger-like" mechanism goes into action when the oestrogen level reaches a peak and a simultaneous response is evoked from the Ovary and cervical crypts as this peak approaches. Thus Ovulation and fertile mucus secretion occur simultaneously. Ovulation is hypothesized to occur from 9 or more hours before to 48 hours after the peak of wetness, hence all of the mucus days preceding the "Peak" "symptom" plus 72 hours following are the presumed fertile days of the couple. Specifically the cervical mucus secretion gives a typical sensation which indicates the fertile days, and warns her of impending ovulation.

THE PEAK DAY :

"The Peak Day is now the most thoroughly investigated single sign in all of NFP. The Studies have all confirmed it to be the most reliable clinical sign of the day of Ovulation currently known.

In addition it is the most precise sign for defining post Ovulation, Infertility. It does not require B.B.T. to improve it. It has also been shown that the external ovular observations of the mucus correlates to a high degree with the events that are occurring higher at the level of the Cervix itself."

(Reproductive Anatomy & Physiology for the NFP Practitioner by Hilgers)

The WHO Study (Publ. Fertility Sterility - August 1981 - pg. 157) said

"The most striking finding was the demonstration that 94% of women representing a wide range of cultural, educational and socio-economic characteristics were able to recognize and record the cervical mucus symptom which allows self-recognition of the fertile period."

This recognition was possible even in the presence of other vaginal discharges - 94% of subjects with discharges were able to interpret correctly their mucus pattern.

Thus we feel confident with the proof of thousands of recorded cycles of ordinary every day women of varying levels of illiteracy, poverty and culture to say to you today that the O.M. (Billings) can indeed be used to detect the fertile period of a woman and thus be an effective indicator of the combined fertility of a man and woman.

"The O M. is now a fact - and an idea whose time has come".

Thank you.

Other References :

1. The Essence of O.M. - J J. Billings, Australia
2. A Quarter of a Century in NFP - J.J. Billings, Australia
3. WHO and Karnataka State Fertility Studies, Crest, Bangalore.

III

Natural Family Planning (NFP) Evaluation of the Calcutta Experience

PROF. AJAY GHOSH, M.D., Ph.D., FRCOG
National Medical College, Calcutta.

SUMMARY OF THE PAPER

Two experiences of Natural Family Planning (NFP) methods, one on *implementation* and the other on *Research* carried out in and around Calcutta, India, are presented in this paper.

Research: The Author obtained observations in a carefully designed and executed study on the symptothermal method of NFP., in the Calcutta slums during the three years between 1978- 80. The method was used by 525 eligible

couples between the ages 18 and 35 years. Another group of 500 similarly eligible couples in a different slum, who did not use any method of contraception, was taken as control. During the three year period of observation the rate of acceptance of the method was found to be 75%. The drop out rate was observed to be only 5.3%. There was no pregnancy during the above period amongst users as against 41% in the control group.

TABLE 1
Distribution of Couples at the end of 1982
by Religious Affiliation

Religious Affiliation	No.	%
Hindus	26,158	60.4%
Muslims	10,223	23.6%
Christians	6,912	16.0%
TOTAL	43,293	100.0%

Prof. Ghosh was unable to be present for the Workshop, but is actively engaged in promoting the Ovulation Methods in Calcutta.

IV

Use Effectiveness of Ovulation Method

INTRODUCTION :

The Ovulation Method is a Natural Family Planning Method which can be used to avoid pregnancy (or to achieve it).

In the ovulation Method the cervix acts as a built-in Indicator of (simultaneous) Oestrogenic stimulation of the ovary and cervical glands which secretes 'E' Type Mucus', in the presence of which *only* the sperm can fertilize the ovum.

The woman uses her genital sensation of wetness and dryness to monitor her fertility and infertility. Illiteracy has proved no barrier to the use of this method.

Over 4,500 couples have accepted this method in Bangalore and allied centres. Records have been kept since 1972, but it was only since 1974 that a serious attempt to collect records and maintain data was made.

Data for this study has been collected over a period of 32 months. (January 1975 - August 31, 1977).

The Couples come from varied socioeconomic-cultural-religious background.

- Approx - 50% Hindu
- 40% Christian
- 10% Muslim.

The data is given of those couples who use the Ovulation Method for :

a) Spacing, (Approx 50%), b) Limitation.

Approximately half of these couples had used no method of Family Planning before. A chart is given and the couple guided by a teacher till they are autonomous. (Sample enclosed).

Many are illiterate. Advice on nutrition, weaning, hygiene and general health care is provided. Many of the husbands are alcoholics and many marital problems were associated with their family planning problem for which our teachers have provided much help and even solutions in some cases.

65 Couples were enrolled in this programme during January 1975 to August 1977, and 174 of these couples had discontinued the use of this method at various stages and for various reasons during this period. The follow-up information regarding continuation, discontinuation and reasons for discontinuation were analysed with August '77 as the cut-off point yielding a follow-up period of 32 months. The results were as follows.

The aggregate woman months of use for this group of women was found to be 7,397.5 giving an average of 11.95 months per acceptor. The average woman

months of use found in this study is quite high as compared to the average reported for other methods, viz. IUD (1. Sadashivaiah et al; (1973); 2. Murthy et al (1967) and Oral Pills (1. Simha et al 1972; 2. Sadashivaiah et al (1974).

Yet cumulative continuation rate computed by adopting Teitze's modified life table techniques are shown in the table. The continuation rate at the end of the first three months was 96.0% which is very high compared to the rate reported for IUD (Sadashivaiah et al 1973 Murthy et al 1967) and ORAL PILLS (Simha et al 1972; Sadashivaiah et al 1974, Leila Mehra et al 1970). The inuation rates at the end of 12 months was 73-0%,

at the end of 24 months 59.36%, and as on cut-off date it was 47-05%. The continuation rates observed in this study have been consistently higher as compared to rates reported for other spacing methods, (reference as above).

Out of the 174 women who discontinued the method during the period of observation, 90 had become pregnant. All, except one, of these have occurred because of the 'user failure', and only one was the "method failure Pearl's pregnancy rate, which reflects the use effectiveness of the method was 14.6% all pregnancies and 0.16% for the methods failure. This shows that the method is very effective, if used properly.

PRELIMINARY REPORT OF 635 COUPLES USING OVULATION METHOD FOR CONTRACEPTION

Net cumulative continuation rates for the Natural Family Planning acceptors on the basis of Teitze's Life Time Table Technique.

Ordinary month	Net cumulative continuation rates	Net cumulative termination rates
3rd	96.00	4.00
6th	86.18	13.82
9th	79.14	20.86
12th	73.00	27.00
15th	70.75	29.25
18th	63.91	36.09
21st	60.51	39.49
24th	59.36	40.64
27th	56.72	43.28
30th	55.23	44.77
32nd	47.05	52.95

Aggregate woman months of use = 7,397.50
Average woman months of use = 11.65

PEARL'S PREGNANCY RATE (For all pregnancies)

$$= \frac{\text{Number of Pregnancies}}{\text{Total woman months of use}} \times 1200$$

$$= \frac{90}{7,397.5} \times 1200 = 14.6$$

Pearl's Pregnancy rate

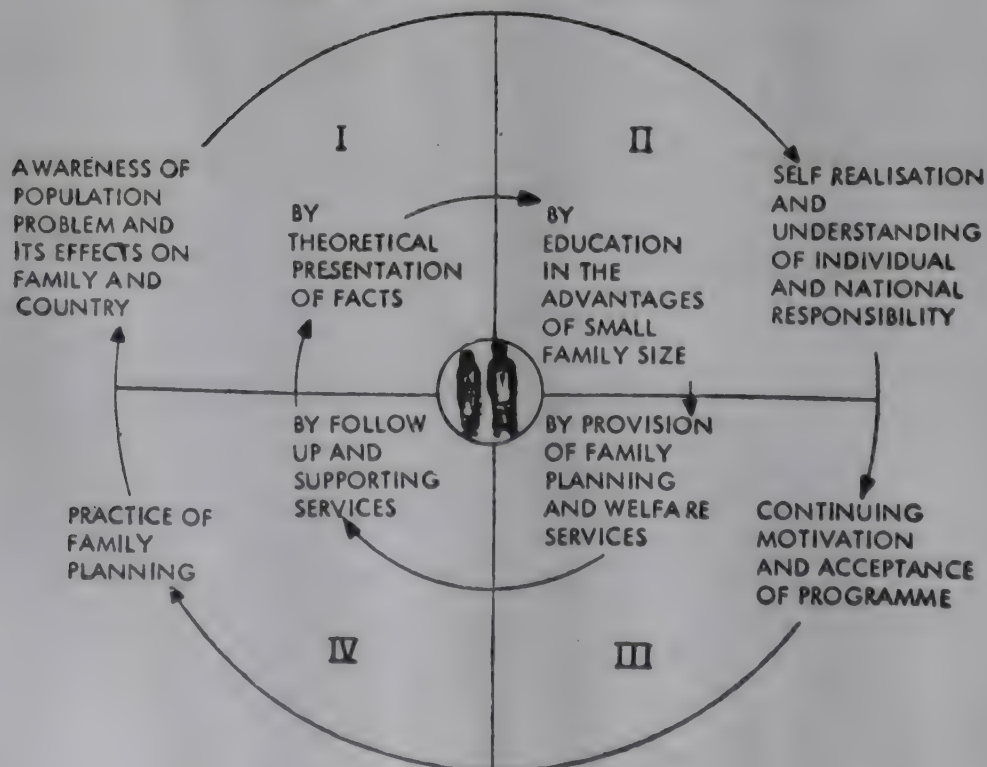
(For method failure)

$$= \frac{1}{7,397.5} \times 1200 = 0.16$$

User Failure

This includes couples who fully aware of the rules of the method chose not to keep them and became pregnant.

THE CYCLE OF HEALTH EDUCATION FOR FAMILY PLANNING



V

Psycho-sexual Behavioural Pattern of the Acceptors

Done by CREST in Bangalore - India

I. a) **LIBIDO** Analysis of 2,334 cycles of 250 couples regarding Libido (or the urge to have sexual intercourse), gave the following results.

LIBIDO	Pre. M.	Post M.	Men.	Ovul.	Not Felt	No Comment	Not Answered
No. of Couples	556	270	13	444	142	509	400
250							
No. of cycles							
2334	23.8	11.6	0.6	19.0	6.1	21.8	17.1

If the teacher felt that a particular couple was not likely to understand or welcome such a question she used her discretion and did not ask it. Hence we feel the answers we received are reliable especially as they were asked to the same couple in different cycles at different times over a period of a year and a changing pattern in several instances

showed that husbands accept abstinence as sexual satisfaction improved with adjustment to the infertile period.

The following statistics obtained as a result of very carefully conducted surveys in England and in Italy should corroborate the truth of this beyond doubt:

Women who experienced libido	In England	In Italy
Around the menstrual period	59%	46.8%
At any time of the cycle ...	35%	34.4%
At the time of ovulation ...	6%	11.8%

(7% in Italy could not be classified).

II

b) HUSBANDS COOPERATION

	Cooperative	Not cooperative
No. of Couples - 250	2105	228
No. of Cycles - 2234	90.2%	9.8%

III.

c) OBSERVATION OF RULES

	Observed	Not observed
No. of Couples - 250	2082	252
No. of Cycles - 2334	69.2%	10.2%

IV. e. COITAL FREQUENCY – as actually marked on a chart is 1.9 both by median and mode assessment, i.e; twice a week. This would probably be amongst the 1st available Indian data obtained over a length of time and systematically.

This shows that there can be no doubt that for the vast majority of ordinary fertile couples periodic abstinence is accepted as a family planning method.

V. f. Last but not least is the fact that approximately 50% of the acceptor couples learnt about the method from a successful user friend. Nothing succeeds like success! This is very significant as compared to and pointed out to us by a sociologist of a Family planning, Association which does not include Natural Family Planning, who said users of other contraceptives do not even speak of the method even in the family circle, leave alone motivate others to accept it. In India such woman to woman motivation will be very useful.

CONCLUSION – This study has given us great encouragement and renewed vigour and we are happy to put at your disposal the experiences and services of the Centre for Research, Education Service and Training for Family Life Promotion, on whose behalf I thank you for your kind attention.

From Reproductive Anatomy and Physiology for the NFP Practitioner by Hilgers

SUMMARY AND CONCLUSIONS

1. Breast feeding does delay the return of both menstruation and ovulation.

2. The longer one fully breast feeds, the more unlikely both menstruation and ovulation are likely to occur.

3. About 50% of women who breast feed regardless of duration will not resume menstruation until weaning or the cessation of breast-feeding.

4. The return of ovulation in fully breast-feeding mothers will not occur (With a high degree of probability) before 16 weeks post-partum.

5. However, when Ovulation does recur, in fully breast feeding women, a high percentage will recur before the 1st menstruation (37.7%)

There appears to be no difference in this fact between lactating and non-lactating women.

6. The overwhelming majority of pregnancies that occur during breast-feeding occur during weaning.

7. Primiparas and women less than 25 years of age appear to be able to suppress ovulation through lactation more effectively than multiparas or women 25 years of age or older.

8. Full breast-feeding and no supplementary (anything) does appear to provide a high degree of protection from pregnancy, but only in the 1st 8-10 weeks post partum.

*Prof. T. W. Hilgers-M. D. Dept. Obstetrics and Gynaecology, Creighton University School of Medicine.

VI

Return of Menses

I. POST PARTUM BY METHOD OF INFANT FEEDING.

Method at 4 months :		% Menstruation
Only Breast	-	39.8
Breast and Artificial	-	56.8
Artificial only	-	55.3

(McKeown et al J. Obst. / Gynaecology - 1954.)

II. CONCEPTION BY METHOD OF INFANT FEEDING :

Method :		No. of Cases :
Breast only ¹	-	2
Breast and Artificial ²	-	6
Artificial only ²	-	79

1. Had one menses before conception
2. Had no menses before conception

(McKeown) (Also Read " The Picture Dictionary of the O. M. " and
" The O. M. of Natural Family Planning " by Hilgers).

VII

First National Workshop on the Ovulation Method

Time intervals during the Menstrual Cycle with special reference to the long Follicular Phase

By PROF. JAMES B. BROWN,
Royal Women's Hospital, (Melbourne University)

To understand the timing of events during the menstrual cycle, it is necessary to understand the underlying mechanisms involved. During the latter half of the preceding cycle, the high output of oestradiol and progesterone by the corpus luteum suppresses the production of follicle stimulating hormone (FSH) by the pituitary gland. The waning production of hormones by the corpus luteum at the end of that cycle causes shedding of the endometrium (menstruation) and removes the suppression of FSH production. The FSH levels rise slowly with a delay mechanism. This delay is necessary because it takes five days from the initiation of a follicular oestrogen to inform the pituitary that the required production of FSH has been reached. Initially, FSH Production is below that necessary for the growth of follicles although some conditioning occurs at these levels. The output of FSH "hunts" upwards seeking the "threshold" level at which a group of follicles is stimulated into active growth. Within five days these follicles are secreting oestradiol. There is an intermediate level of FSH production which

must be exceeded before a follicle is stimulated sufficiently from its initial growth phase to progress to ovulation. There is also an upper level of FSH production which must not be exceeded otherwise excess stimulation and multiple pregnancies result. This upper level is only 20-30% above the threshold value so that precise feed-back control of FSH production by ovarian oestradiol is essential. As the dominant follicle is being boosted to ovulation it is producing increasing amount of oestradiol which feed back to the pituitary and suppress FSH production to below threshold value, this suppression is important as it prevents the FSH production from exceeding the desired limit, it removes stimulation from lesser follicles which are competing in the race to ovulation, and it turns on a maturing mechanism within the dominant follicle which renders it receptive to the second pituitary gonadotrophin, luteinizing hormone (LH). The high oestradiol levels also actuate positive feed-back stimulus to the pituitary to cause the mid-cycle surge of LH release which initiates follicular rupture (ovulation). Production

of oestradiol falls immediately before ovulation and the corpus luteum which results from the ruptured follicle then starts secreting increasing amounts of oestradiol and the second ovarian hormone, progesterone.

Oestradiol produced during the follicular phase of the cycle causes production of cervical mucus, the progesterone produced by the corpus luteum, even in the presence of oestradiol, inhibits this production.

All of the above processes require time. The "hunting" phase where the pituitary is searching for the 'threshold' level of FSH production is one of the two variable time sequences of the cycle and take a week in cycles of normal length or several months in women with infrequent cycles. No follicular development occurs until the threshold is reached; thus no oestradiol is secreted and no mucus is produced. The woman experiences a succession of "dry" days during this time. Unless the woman has reached the menopause or has settled into a long phase of amenorrhoea, the FSH values eventually rise to exceed the "threshold" and follicular development commences.

Within five days, oestradiol is being secreted and mucus production commences During the normal cycle, the rise in FSH production continues smoothly so that the intermediate level is exceeded within a few days and the follicle is boosted to ovulation. However, in prolonged cycles, the rise may be arrested and the FSH levels remain with-

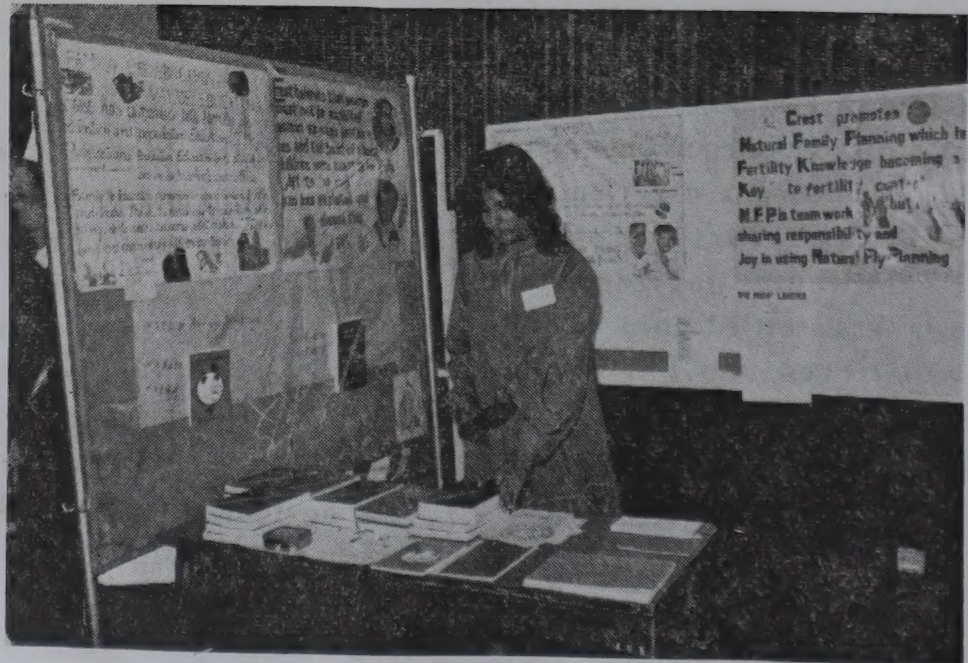
in the intermediate phase. This is the other variable time sequence of the cycle. It may continue until the oestradiol produced has caused break-through bleeding. This is the usual case of spotting at mid-cycle or can be a true an ovulatory bleed. This intermediate phase can persist for a considerable time or the feed-back mechanisms may eventually operate to increase FSH production so that a follicle is boosted to ovulation,

While development is arrested in the intermediate stage, the woman will experience patches of mucus, the characteristics of which depend on the levels of oestradiol being produced. *Recording of "dry" or "mucus" days during the pre-ovulatory stages of prolonged cycles is in effect a record of when the FSH levels are in the "sub-threshold" or intermediate ranges.*

Once the dominant follicle has been boosted to ovulation, the resulting events occur within very narrowly defined time sequences. The boosting phase occupies three days to the maximum mucus symptoms, the time between peak oestradiol production and ovulation is two days, and the interval from ovulation to the next menstrual period is 10—14 days. A shortening of the latter interval denotes an infertile cycle and a lengthening denotes pregnancy. In terms of the mucus symptoms, prolonged cycles are characterized by an extremely variable number of 'dry' days and 'mucus' days depending on the phase of pituitary activity at which the delay occurs. Once an ovulatory course is

embarked upon, the timing of the subsequent events is highly predictable. The maximum symptoms of fertile mucus are observed on the day of peak oestradial production before ovulation, the

rapid change in symptoms which occurs at ovulation is due to the increasing production of progesterone at this time, and the onset of the next menstrual period is highly predictable from these events.



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